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THE MEDIATING EFFECT OF PSYCHOLOGICAL CAPITAL BETWEEN INTELLECTUAL CAPITAL AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

The present study highlighted the important contribution of the psychological resources of employees in organizational performance. The main focus of this research was to determine the mediation role of psychological capital between the relationship of intellectual capital and organizational performance with reference to the Pakistan's software industry. Survey type of research was applied for data collection through a questionnaire. Convenience sampling technique was used for the selection of sample. A sample of 320 software developers from software companies registered with P@SHA participated in this research and the data was analyzed by applying descriptive and inferential statistics.

Consistent with the previous literature correlation analysis of this research indicated that a significant association was present between the intellectual capital, psychological capital and organizational performance. Moreover, the regression analysis results confirmed that psychological capital mediates the association present between intellectual capital and organizational performance. It was concluded from results that insertion of psychological capital not only increased organizational performance but it also boosted the intellectual capital of employees. So, it was empirically confirmed that the development of psychological resources of employees has multiple positive impact on employees and organizational performance.

KEY WORDS: Psychological capital, Intellectual capital, Organizational performance

INTRODUCTION

Early management science approaches need to be traced out to understand the concept of a human resource. The Classical Management view point emerged during the late 19th- century. It dealt with hierarchical and bureaucratic organizations and emphasized more on the betterment of job and overall efficiency of the organizations. At that time labor was poorly organized, they were viewed as machines. Their views, emotions, intelligence, behavior and satisfaction were not considered. However, the behavioral perspective was a significant step in the advancement of management thought. They highlighted the importance of labor as an active human resource different from tools and machines. With the evolvement of management as a discipline, the significance of human resource increased and a sub-discipline named human resource management emerged out of business management. Human resource is an important intangible asset for running organizations effectively. Now a days organizational resources are not only viewed as stable objects or material resources but also reckoned as dynamic and intangible elements of human creativity and evaluation(Zimmermann, 1951).Vargo and Lusch (2004), explored this emerging view of resources by introducing a new provision of marketing named as Service-Dominant Logic (SD-Logic) of marketing. They defined the service as the application of skills and knowledge which was considered the basic unit of exchange. Shift towards SD- Logic is because of the increasing focus on operant resources. The resources that have no physical existence, effective in use and extensively available are perceived as primary resources for producing effects and known as operant resources while static and limited resources on which operations are performed to produce impact are called operand resources(Vargo & Lusch, 2004).

Vargo and Lusch (2004), proposed SD Logic for marketing discipline but it is equally applicable to human resource management. They conceptualized service as the implementation of knowledge and skills which is possessed, applied and exchanged by the human resource.They examined eight foundational premises (FPs) in the article, “Evolving to a New Dominant Logic for Marketing” and they further studied 10 FPs in “Service-Dominant Logic Continuing the Evolution”. For the current study, the following two FPs are adopted:

- (i) Services and skills are taken as exchange units in the marketplace instead of physical objects. Individuals possess two set of operant resources known as mental and physical skills but they are not fully equipped with both the skills for their survival and prosperity. They require the exchange of their skills and services with others in the market to get benefit from their specialized competencies (Macneil, 1980).
- (ii) Knowledge is an important operant resource that provides organizations with a strong foundation for becoming competitive in a dynamic environment. Knowledge and technological innovation are the main resources to increase a firm’s efficiency (Capon & Glazer, 1987; R. R. Nelson, Peck, & Kalachek, 1967).SD Logic signifies that operant resources specially knowledge and mental capabilities are the core factors for becoming competitive and these resources are reflected in intellectual capital and psychological capital.

In today’s knowledge-based society organizations are filled by the information technology because now technological advancement is viewed as a necessary condition for becoming competitive(Bergek, Hekkert, & Jacobsson, 2008). Creation and transfer of information, skills,

and knowledge within organization networks have raised the importance of Information Technology (IT) industry. Creativity, innovations, improved performance, profitability, technical advancement and, skilled workforce is the footprints of the software industry in a global economy across different ventures. In the current dynamic environment, every business structure is linked with the software industry for rapid operation so this intense need sets the trends to accelerate the software industry.

Similar to other developing countries like Malaysia, Philippines, and Singapore Pakistan's software industry has also experienced significant growth. Currently, Pakistan software industry is going under the level 3 software exporting nation (Carmel, 2003). The challenging situation of global markets is becoming an opportunity for Pakistan's software industry to appear as target worldwide. It is the need of the time to invest in our industry because it will have a remarkable influence on Pakistan's economy in the near future. The vital move of taking the software industry to its peak is to keep the brains which we have in abundance in Pakistan. We only need the utilization of brains in an efficient manner for the progress of our industry (Hassan, 1998). The software industry is human intensive and effectiveness of this sector is mostly dependent on the quality of employees. It is human talent that inspires changes and shifts the direction of the organization for finding a new source of value in terms of new products or service, ideas, and improved process. Therefore, the need for intellectual capital and psychological capital must be considered for having highly skilled, experienced and motivated employees.

LITERATURE REVIEW

Intellectual Capital

The research about the meaning of intellectual capital originated from western nations. The term was initially coined by an economist named John Kenneth Albright with the goal of interpreting the value gap present in book value and market value of organizations. Later on, a famous economist of US, James K. Galbraith published the concept of intellectual capital for the first time (Galbraith, 1969). He introduced it as "the move from having knowledge and skills to using knowledge and skills". Scholars have introduced much western literature about intellectual capital for research purpose and based on that developed their opinions. Back to 1958, Stewart T.A asserted on his fundamental work about intellectual capital and shortly define it as a bundle of productive knowledge (Stewart Thomas, 1997). Intellectual capital is a difference in the historical cost and present cost of the organization equity (Bontis, 1996; Edvinsson & Malone, 1997; Sveiby, 1997b). It is a stock of understanding, proficiency, skill, expertise, and know-how that relates to an organization for increasing its worth (Dzinkowski, 2000; Stewart & Zadunaisky, 1998). Intellectual capital provides the basis for becoming competitive because of distinctive composition of the internal resources that are inimitable (Black & Boal, 1994). One of the aspect is that any sort of knowledge that ingrained in human resources and are capable of creativity and innovation can be considered as intellectual capital (Phusavat & Kanchana, 2007; Shaikh, 2004). Moreover, intellectual capital is the combined knowledge of individuals and groups working together within the organization which the organization utilizes for taking effective decisions (Petty, Ricceri, & Guthrie, 2008). Intellectual capital exploration is still on going, Therefore no unanimous definition has been approached to determine its sub-elements (Kozak, 2010). According to different frameworks, three main components of intellectual capital are human capital, relational capital, and structural capital (Brooking, 1996; Edvinsson & Malone, 1997; Sveiby, 1997b).

Human Capital

The most valuable component of intellectual capital is human capital (Khalique, Shaari, & Isa, 2011). According to Sveiby (1997a), human capital is expressed as the implied knowledge that employees of all levels occupied in their minds ranging from conceptual skills to technical skills.

Structural Capital

Structural capitals mean all systems and capabilities of an organization that support and facilitate the employee's activities for increasing productivity. It can be a monetary system, information system, business plans and operations, patents, trademarks and networking systems (Bontis, 2001; Daum, 2003; Vaškelienė, 2003).

Relational capital

Relational capital is a kind of useful information that occurs within a relationship with suppliers, business partners, customers, shareholders and other regulatory institutions of Government (Bontis, Chua Chong Keow, & Richardson, 2000; Shih, Chang, & Lin, 2010).

Literature supports that intellectual capital has a strong impact on organization novelty, inventions power, and value creation. In America, a study was completed on multinational companies with selected variables intellectual capital and organizational financial performance and results of the study proved the presence of a positive association between the variables (Riahi-Belkaoui, 2003). From result analysis of a study performed in universities of Spain, it was found that universities innovations depends on exploration capability of human capital and also on their interaction with other learning systems (Paloma Sánchez & Elena, 2006). In a study it was examined that organizational capital supports the innovativeness of firms by providing a platform for the exchange of knowledge and the generation of new ideas (Sandra M. Sanchez-Canizares, Munoz, & Lopez-Guzman, 2007). Furthermore, A study conducted in manufacturing and non-manufacturing firms of Taiwan confirmed the positive and significant relation between human capital and organization's innovation (Wu, Chang, & Chen, 2008). Research findings of an Iraqi industry confirmed that a positive relationship exists between components of intellectual capital and organizational performance in terms of customer satisfaction, customer retention, innovation, number of new products and effectiveness and efficiency (Ahmad & Mushraf, 2011). In the year 2012, a research carried out in Iran with a sample of 155 workers of Meli bank reported that there is a positive relationship in between intellectual capital management and organizational innovation (Ghorbani, Mofareidi, & Bashiryan, 2012). In a study of software development firms in Kenya with the moderating effect of firm size, it was analyzed that human capital and social capital is related to the firm's innovativeness but organizational capital has no significant impact on firms innovation process (Tarus & Sitienei, 2015). From the result of a research conducted among the employees of a hospital in city of Shanghai concluded that there is a positive relation between human capital and organization innovation and learning ability (Qian & Huang, 2017). A study conducted in Malaysian banking and non-banking sector and results showed that intellectual capital is associated with organizational performance (Hashim, Osman, & Alhabshi, 2017). From the result of a research conducted in the Malaysian electrical and electronics manufacturing industry it was determined that a link is present between intellectual capital and organizational performance (Khalique, Bontis, Shaari, Yaacob, & Ngh, 2018). Considering the previous literature following hypothesis has been developed.

H1: Intellectual capital significantly affects organization performance

Psychological Capital

The notion of positive psychological capital has its roots in postmodern positive psychology. Only a couple of years' back in 1999 positive psychology was initially explored by M. Seligman and his partners in the area of organizational behavior and eventually evolved by Luthans and his associates in the USA in the year 2004. The idea of positive psychology provoked a new approach known as "Positive organization behavior". It incorporates qualities and constructive parts of human behavior as opposed to concentrating on dysfunctional and negative aspects of what is not right with them (Cavus & Gokcen, 2015). Various correspondents had been used the expressions Positive psychological capital and Psychological capital synonymously in literature. In the meantime, psychological capital stresses on an individual psychological source comprising of four basic parts termed as self-efficacy, hope, optimism, and resilience. That's why it termed and comparably connected with the theory of Positive psychological capital (Goody, Gavin, Johnson, Frazier, & Snow, 2009). Since 2006 Psychological capital has been penetrated in the field of management and organization and it becomes the focal point of study for researchers and scientists in the domain of Human Resource Management and Organizational Behavior due to its exclusive ability to develop organization belongings (Hozoori, Salehi, Danaee, & Najari, 2013). Psychological capital identifies the positive approach to develop, organize, measure, and evolve human capital for better performance in the current environment (Luthans, 2002). A capital that can be achieved like tangible assets with an only small investment and easy to manage and utilize like intangible assets human capital and social capital is recognized as psychological capital (Luthans & Youssef, 2007). Positive organization behavior concentrates on describing individuals positive qualities instead of focusing on their shortcomings (D. Nelson & Cooper, 2007). According to previous reports, psychological capital has four dimensions of hope, optimism, self-efficacy, and resilience (Luthans, Avey, Avolio, & Peterson, 2010; Luthans, Youssef, & Avolio, 2007)

Hope

It is the willpower of an individual for setting goals and about the pathways, he decided to go on for the attainment of those goals (Snyder, 2000). For the realization of desired objectives, individuals required the feelings of agency and expectations that internally determined the individuals to contribute his energy to the set goals (Luthans & Youssef, 2004).

Optimism

Optimism is defined as a person's hope for favorable returns (Scheier, Carver, & Bridges, 2001). It is the mental intention and general desire to have the most ideal and constructive returns that can influence the individuals future positively (Keles, 2011).

Self-efficacy

Self-efficacy is characterized by an individual's confidence in his potentials for successfully executing a particular task in a given setting by employing all his approaches and mental abilities (Stajkovic & Luthans, 1998). It is an individual's belief regarding his distinctive expertise for getting success and for fulfilling objectives (S. Sweetman, Luthans, B. Avey, & C. Luthans, 2011).

Resilience

Resilience is characterized by the ability of a person to recover from the failures of life and accommodate with changing and stressful situations of life (Tugade & Fredrickson, 2004). Resilience is related to capabilities to effectively manage or deal with the causes of critical stressors (Windle, 2011).

Different studies inform that individuals who are highly entertained with psychological capital have higher job satisfaction and give greater attention to organization goals (Avey, Reichard, Luthans, & Mhatre, 2011; Newman, Ucbasaran, Zhu, & Hirst, 2014). Commenting on a previous report it was discovered that hopeful employees are more self-directed and confident. They have the ability to create different routes that guide them to attain their objectives and show higher performance (Luthans & Jensen, 2002; Peterson & Luthans, 2003). According to Snyder (2000) individuals having the characteristics of optimism, resilience, hope, and self-efficacy tend to be more imaginative and predictable, they generate and follow diverse ways to accomplish their task and achieving goals. They have a broad vision, creative mind and are more exposed to risk-taking (Bandura, 1993). They have a passion to defeat the challenging task more courageously (Masten & Obradović, 2006). In a study of entrepreneurs in the United States of America, the association between psychological capital and work tension was analyzed by using the level of job satisfaction. After the study, it was observed that individuals who are highly equipped with hope, self-efficacy, optimism, and resilience are more satisfied with their jobs which in turn develops resistance for reducing negative effects of work tension (Hmieleski & Carr, 2007). Organization with supportive culture and powerful atmosphere motivate and promote the positive thinking and performance of the employees by developing hope and confidence in their behavior or by reducing, controlling and changing their silence behavior, negativity and perception about loneliness (Eisenberger, 2002). A study specified that for developing and promoting creativity and innovation in organization it is paramount to establish a relationship between perceived organization support, culture and employees behavior (Gu, 2008). Based on the above mentioned literature following hypothesis has been generated:

H2: Intellectual capital significantly affects psychological capital

Furthermore, Psychological capital transforms employees' commitment and job satisfaction in a positive way and effects organization performance because employees commitment and job satisfaction indirectly predict organizational performance (Idris & Manganaro, 2017; Luthans, Avey, & Patera, 2008). Employees' commitment has possible significant effects on overall organization performance. Organization value those employees whose level of commitment is high because they do not hold the negative behavior such as lateness, withdrawal, turnover and absenteeism and they are more likely to accept organizational change and ready to adapt themselves according to the organization (Lo, Ramayah, & Min, 2009). Furthermore, Avey, Wernsing, and Luthans (2008) analyzed the association between optimism, hope, self-efficacy and positive emotions and identified a considerable connection that leads to positive attitudes like work engagement and positive behavior like organization citizenship related to change in the organization. By focusing on a previous study, it was observed that hope component of psychological capital is positively related to the creative performance (Sweetman, Luthans, Avey, & Luthans, 2011). Psychological capital has been considered as the most powerful means for acquiring the desired level of organization performance (Lewis, 2011). Psychological capital acts as a driving force for influencing and boosting the individual performance, for fostering organizational performance through growth in income and getting competitive advantage (Nasr Isfahani, Arefnezhad, Mohammadi, & Khalili, 2012). A study was conducted and from the result it is observed that psychological capital dimensions hope, resilience, self-efficacy, and optimism are utilized for predicting and developing innovative performance (Sweetman et al., 2011). Psychological capital has a remarkable impact on upgrading the innovation of the organization (Rego, Filipa Sousa, Marques, & Cunha, 2012). According to a study of the fashion

industry in India, psychological capital has significant importance in examining and affecting employees innovative behavior (Jafri, 2012). In a study of Pakistan, it was examined that psychological capital has a positive association with innovative job performance and it is negatively linked with job stress because individuals with high psychological capital have more innovative behavior and develop more new ideas and solutions at their jobs (Abbas & Raja, 2015). These findings lead us to develop the hypothesis

H3: Psychological capital significantly affects organization performance

Psychological capital as a mediator

In the past, a number of empirical studies was conducted on the mediating role of psychological capital because it has direct and indirect impacts on organization outcomes. A report on the mediating role of optimism between self-efficacy, social support and well-beings proved that optimism partially mediates the relationship between self-efficacy and perceived social support. Optimism predicts satisfaction which in turn leads to well-being (Karademas, 2006). Literature supports that collective psychological capital and trust mediates the association of authentic leadership and group level desired performance of employees (Walumbwa, Luthans, Avey, & Oke, 2011). Moreover, in a research it was observed that psychological capital acts as a mediating variable and has a positive contribution to improve the quality of work life (Mortazavi, Shalhaf Yazdi, & Amini, 2012). In a study of service sector organization; it was confirmed that bi-directional work family is not directly linked with innovative work behavior, their association is mediated by psychological capital (Mishra, Bhatnagar, & Gupta, 2013). Psychological capital mediates the relationship between organizational climate and organizational citizenship behavior. Mediation analysis proved that organization citizenship behavior develops only when organization climate support employees psychological capital (Qadeer & Jaffery, 2014). Besides that from the results of a study it was found that psychological capital has strong relationship with well-being and performance of employees mediated through stress coping strategies (Rabenu, Yaniv, & Elizur, 2017). A study on mediating role of psychological capital reported that psychological capital mediates the relationship between organization innovative climate and employee innovative behavior (Hsu & Chen, 2017). The result of a study conducted in Taiwan retail chain enterprises showed that psychological capital mediates the effect of high commitment work systems on work engagement (Chen, 2018). These findings lead us to develop following hypothesis

H4: Psychological capital mediates the relationship between intellectual capital and organization Performance

Organizational Performance

It is the most significant measure to assess an organization's activities and environment because organizations are constantly striving for better results and to become competitive. Performance is not an easy concept; it is dynamic in nature and a multidimensional construct. It is difficult to give it a common definition and relate it with a single indicator for measurement so it has been conceptualized by using both financial and non-financial measures. In 1950s organizations were viewed as a social system. They used resources to meet their objectives and performance assessment was centered around work, individuals and hierarchical structure (Georgopoulos, 1957). Thereafter in 1960s and 70s, organizations characterized performance as an organization's propensity to achieve and utilize available limited resources after scanning its internal and

external environment (Seashore & Yuchtman, 1967). Furthermore, during 1980s and 90s, managers began to perceive that an organization's success depends on efficient utilization of its limited resources to achieve the goals effectively. Conventional view about performance is based on the idea of voluntary association that organizations develop from the interrelation of productive and material assets, capital and human resource with the aim of attainment of mutual interests or goals (Alchian & Demsetz, 1972; Jensen & Meckling, 1976). Thereafter, Kaplan and Norton (1996) highlighted that rather than depending too much on financial methodologies for securing strategic goals, organizations should also incorporate non-financial measures including the customer perspective, internal business perspective, and learning and growth perspective along with financial perspective. According to Atkinson, Boore, and Boatwright (1997), the most recent shift observed in performance appraisal frameworks is the mutual development of both existing measures of assessment. For example, improvements in a financial index like economic value addition and in non-financial benchmarks like customer loyalty and satisfaction, employee's commitment and product innovation that empower an organization to evaluate and compare his current performance with the past one. Clark referred to market share in the industry, the profitability of the firm and sales growth as the most repeatedly manipulating indicators among different businesses to viably gauge performance (Clark, 2000). Moreover, organizations also measure performance on the basis of value added by the use of provided assets. When the value created is less than the expected, organization performance goes down and assets are no more in the use of the organization (Bruce Carton, 2004). Organizational performance acts like an instrument which brings into use for evaluating the success of an organization that how much value it adds to their stakeholders (Antony & Bhattacharyya, 2010). The determinants used for measuring performance are chosen on the basis of the phenomenon being studied and they determine the end results whether they are positive or negative. Structure and culture of the organization, relationship networks, innovation strategy and technological capability all are considered important determinants of the innovative performance (Kamasak, 2015). In today's dynamic and aggressive business environment, leaders flexibility and effectiveness also has a great influence on organizational performance (Soebbing, Wicker, & Weimar, 2015). Organizational performance can also be measured by the attainment of goals and objectives. It is defined as the difference between actual results or intended out of the organization (Tomal & J. Jones, 2015)

Theoretical Underpinning

There are multiple theories which support our stance but the underlying study is based on two theoretical perspectives: Resource-Based Theory and Social Network Theory for measuring the effects of Intellectual Capital and Psychological Capital on the performance of software industry. Resource Based theory argues that there is a fit between organization strategic resources and sustainable competitive advantage. It provides organizations with a way to understand how to use their internal resources that allow organizations to enjoy excellence performance (Grant, 1991). Underlying study mobilized the resourced based theory by capitalizing resources such as intellectual capital and psychological capital for getting better performance and competitive advantage. From the perspective of resource based theory, human capital is a valuable resource of the organizations; they are the source of competitive advantage. They initiate change in production processes and delivery methods by generating innovative techniques and ideas to improve organization internal and external relations for higher performance. Structural capital such as systems, procedures, models, technology and cultural dynamics also contribute to organization's competitive advantage. A supportive system or culture encourages employees to

learn new techniques and develop new ideas and products. It facilitates the learning process that multiplies the skills and expertise of employees and has a considerable effect on organization performance. Relational capital includes all external and internal networks of the organization and is important for an organization to be successful. It ensures the smooth running of the organization if it is managed effectively because it develops long term relationships based on trust. Additionally, being an important resource, human capital has a positive impact on organization effectiveness by enhancing its capacity to adapt itself in a dynamic business environment. Human capital exploits their inherent abilities, knowledge, and skills which are rare and inimitable to develop the organization core competencies. Beyond this recognition, employees do not add value to the firm until their behavior is not utilized properly. The social network theory focuses on how social structures of relationship affects the belief and behavior of employees or groups within or outside the organization and how they acquire and distribute the information and knowledge within these social networks(Gulati, Dialdin, & Wang, 2002).On the basis of this perspective, relational capital and structural capital not only contribute to organization performance but also enhance employees' positive behavior. Supportive culture develops a trust-based relationship by eliminating the barrier of communication and sharing of ideas and knowledge within the network. It boosts the employees' confidence level and motivates them to find out new and diverse ways for the realization of their goals which in turn increases their creative thinking and innovative ability. Identification of psychological capital does not negate the importance of others capital but for increasing organization competitiveness and for achieving long term performance organizations needs to develop and manage psychological capital of their employees properly(Luthans & Youssef, 2004).On the basis of above mentioned theories, this study proposed a conceptual and theoretical framework that focused on the relationship of intellectual capital, psychological capital and organization performance.

Conceptual Framework

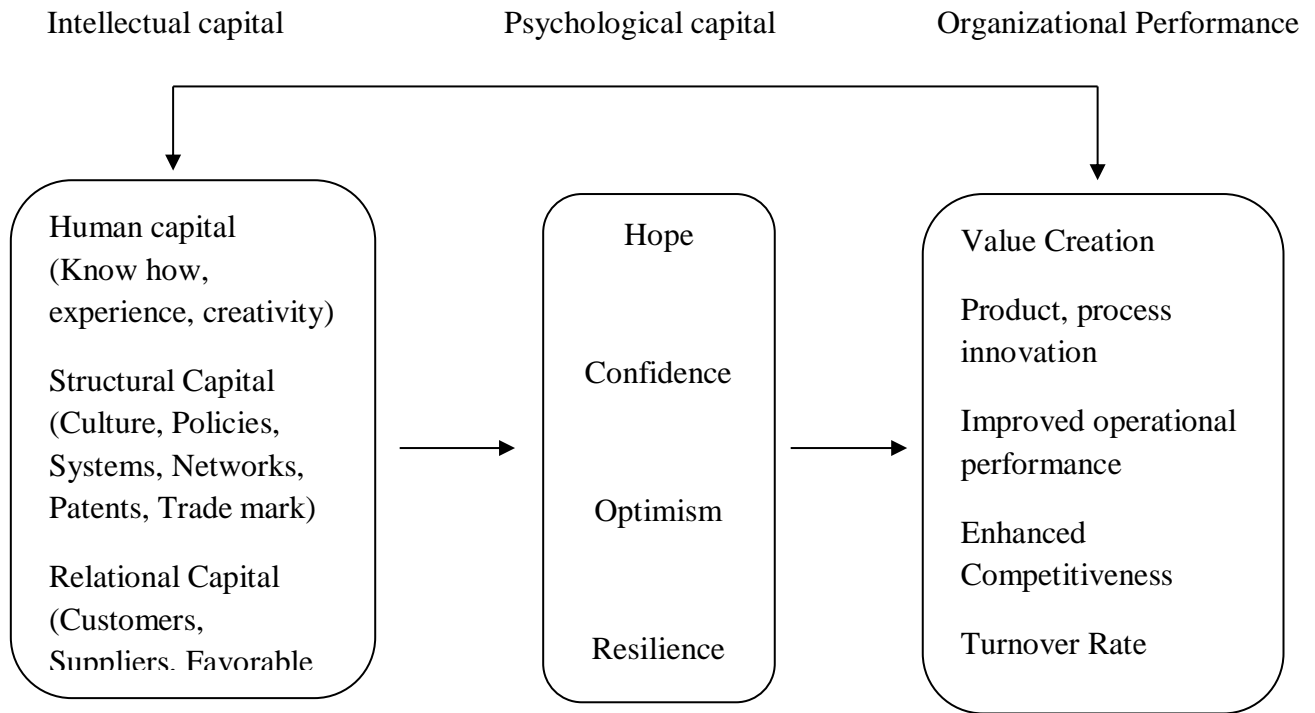


Figure 1

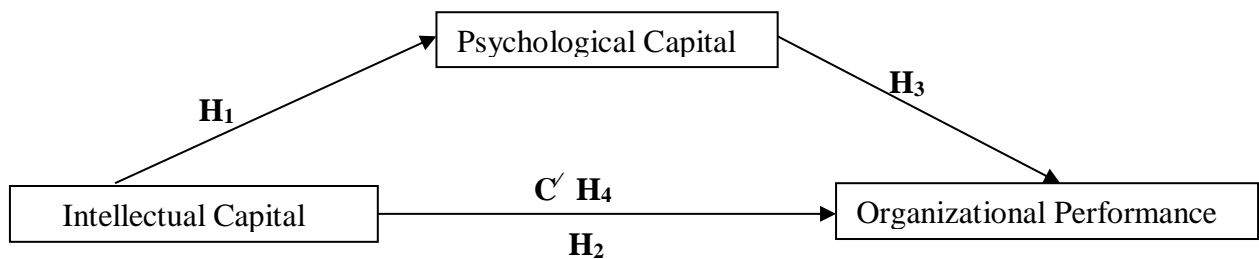


Figure 2

METHODOLOGY

Sample Size and Sampling technique

A sample of 320 software developers was selected for this study. The sample size is determined by the widely-cited rule of thumb from Munro (2005) that the subject to item ratio should be at least 5:1. This study used the convenience sampling technique which is a method of non-probability sampling for sample selection. The list of software developers working in registered IT firms at the platform of Pakistan Software Houses Associations (P@SHA) was difficult to find therefore the application of probability sampling was not possible. Thus, a convenience sampling technique is adopted to reach the representative respondents. Data was collected from software developers of software houses located in Lahore. Initially an e-mail was sent to HR departments of the concerned organizations to explain the purpose of the study along with a request for participation. With their consent for assistance in data collection, an email with the link of the questionnaire was sent to the software developers through their HR department for participating in the research. In total, 320 questionnaires were filled by 35 different companies.

Questionnaire composition

The questionnaire is comprised of two parts. The first part of the questionnaire measures the intellectual capital, psychological capital and organizational performance and second part measures the demographic data of the respondents (including gender and experience). The questionnaire used for this study was adopted from the following references:

- For measuring Intellectual capital variable on three dimensions, human capital, structural capital, and relational capital, a questionnaire containing 53 items designed by Dr. Nick Bontis has been used (Bontis, 1997)
- The psychological capital questionnaire consists of 24 items developed by Luthans and Colleagues in 2007 has been used for measuring Psychological Capital on four dimensions Hope, Confidence, Optimism, and Resilience (Sapyaprapa, Tuicomepee, & Watakakosol, 2013)
- Organizational performance has been measured by using the 11 items questionnaire developed by ManalMunir (2014) for assessing the non-financial performance of the organization.

To measure the variables, Likert scale format of the questionnaire was considered because it gives the benefit of getting more opinions rather than simply anticipating yes or no answer. Likert scale is a psychological response scale used to obtain the opinion of respondents about the series of statements of the questionnaire. For the underlying study the researcher used 5 point interval Likert scale to rank the responses because it indicates the magnitude of difference among the offered choice. 5 pre-coded responses from 1 “strongly disagree” to 5 “strongly agree” were incorporated to collect the data.

RESULTS

Reliability of measures

Reliability means stability and consistency with which the questionnaire measures the construct of interest. Before distributing the questionnaire for data collection researcher measures the

reliability of the instrument by pursuing the Cronbach alpha test for each construct and found that measuring instrument has no internal consistency problem.

Table 1: Reliability test values for independent and dependent variables

Variables	No of Items	Cronbach' s Alpha
Intellectual Capital	32	.903
Psychological Capital	24	.922
Organizational Performance	11	.827

Table 1 shows Cronbach alpha coefficients of the three constructs. Normally the minimum requirement for Cronbachalpha is 0.7.From Table 1 it has been observed that the Cronbach alpha coefficient of intellectual capital is .903, psychological capital is .922 and organizational performance is .827.Cronbach Alpha coefficient of three constructs is above 0.7 which is preferable, therefore, measurement of the underlying study was satisfactory for reliability

Correlation analysis

In table 2 correlation analysis among the three constructs is applied to determine either mediation occurred or not before running mediation analysis. For this purpose, three conditions were established

- (i) Intellectual capital has a positive relationship with organizational performance
- (ii) Intellectual capital has a positive relationship with the psychological capital
- (iii) Psychological capital has a positive relationship with organizational performance.

Table2: Correlations between intellectual, psychological Capital and organizational performance

Measures	1	2
Intellectual Capital	-	
Psychological Capital	.488**	-
Organizational Performance	.671**	.531**

Note. *p<.05, **p<.01

Table2 confirms the relationship between intellectual capital, psychological capital and organizational performance. Results show that there isa positive correlation between intellectual capital and psychological capital, $r = .488$, $n = 320$, $p < .01$ which explain that increase in the level of intellectual capital will increase the level of psychological capital and vice versa but this relationship is moderate. Similarly, a positive relationship is also observed between intellectual capital and organizational performance, $r = .671$, $n = 320$, $p < .01$.This relationship is more

significant and strong. Moreover, table shows a positive relationship between psychological capital and organizational performance, $r = .531$, $n = 320$, $p < .01$ and found that it is a strong relation.

Regression analysis

The Hayse model 4 for mediation was applied after checking regression assumptions on the data. The data normality, a test of normality (Kolmogorov-Smirnova and Shapiro-Wilk) was conducted along with box plot and QQ plot. The P-values against Kolmogorov-Smirnova and Shapiro-Wilk were found greater than .05 which showed that data was normally distributed for all three variables. To check, the assumptions of multicollinearity, collinearity diagnostics and correlation among variables was applied. The correlation among independent and mediating variable was below .8 (see correlation table 2), VIF scores was found below 10, and tolerance scores to be above 0.2. The assumption that residuals were independent (autocorrelation among residuals), Durbin-Watson statistic was applied and found a highly desirable value of 2.207. To check the assumption of residuals normality, a test of normality (Kolmogorov-Smirnova and Shapiro-Wilk) on understudied residuals along with box plot and QQ plot for understudied residuals was applied and found a P-value greater than .05; thus it was inferred that residuals normality were normally distributed.

Table 3 contains a summary of the mediation model applied to examine the mediating effect of psychological capital between intellectual capital and organizational performance. It also examines variation due to mediation from the independent variable to the dependent variable.

Table 3: Regression Coefficient, standard error and model summary for mediator models

Predictors	Psy-Capital (M)			Org-Performance(Y)			Direct Effect		
	<i>Coeff</i>	<i>SE</i>	<i>P</i>	<i>Coeff</i>	<i>Se</i>	<i>P</i>	<i>Coeff</i>	<i>Se</i>	<i>P</i>
Intel-Cap (X)	.627	.063	<.001	.785	.049	<.001	.633	.053	<.001
Psy-Capital(M)	---	---	---	---	---	---	.243	.041	<.001
Constant	1.847	.205	<.001	1.123	.214	<.001	.674	.217	.002
	$R^2 = .238$			$R^2 = .451$			$R^2 = .505$		
	$F(1,318) = 99.461 = p < .001$			$F(1,318) = 260.726 = p < .001$			$F(2,317) = 161.524 = p < .001$		

Table 3 shows the results of Model 4 by Andrew Hayes (2013) by incorporating the values of coefficients, SE, statistical significance, and R^2 . It additionally confirms the findings regarding the hypothesis formulated for the study. Statistical summary of Model 1 covers hypothesis 2 by pointing out that intellectual capital influences psychological capital. R^2 value in Model 1 indicates that intellectual capital explains 23.8% variation ($F(1,318) = 99.461$, $p < .001$) in psychological capital. Positive β value points out that one-unit change in intellectual capital can

cause .627unit-change in the psychological capital which is statistically significant, thus, H2 is not rejected. Model 2 covers the hypothesis H1 i.e. intellectual capital affects organizational performance and R² explains 45.1% (F (1,318)=260.726. p<.001) variance and positive β value points out that one-unit change in intellectual capital can cause .785 unit-change in organizational performance which is significant. Likewise, statistical summary of Model 3 confirms the hypothesis 3 and 4 which cover the impact of intellectual capital on organizational performance mediated by psychological capital and effect of psychological capital on organizational performance. R² value shows that the intellectual capital and psychological capital explain 50.5% of the variance in the organizational performance (F (2,317) =161.524, p<.001).A positive value of β specify that one-unit increase in intellectual capital can increase .633 units in organizational performance whereas the one-unit change in psychological capital can bring .243unit-change in organizational performance thus, H3and H4are not rejected.

Direct and indirect effect

In Table 4the mediation test examines the indirect effect of the predictor (intellectual capital) on outcome variable (organizational performance) through mediating variable (psychological capital).

Table 4: Direct and indirect effect of mediator model

	<i>Effect</i>	<i>SE</i>	<i>T</i>	<i>P</i>
<i>Total effect</i>	.785	.049	16.147	<.001
<i>Direct effect</i>	.633	.053	11.946	<.001
<i>Indirect effect</i>	<i>Effect</i>	<i>Boot (SE)</i>	<i>Boot LCCI</i>	<i>Boot ULCI</i>
Ind1	.152	.046	.084	.262

Ind1: Intel-cap→Psy-Cap→ Org-Per

Note: N=320

Table 4 shows that the result of total effect covers hypothesis1 which measures the impact of intellectual capital on organizational performance. Total effect result explains that intellectual capital brings a change of .785 units in organizational performance and it is significantly positive. Likewise, direct effect results reaffirm the findings of Model 2 projected in Table 4.It shows that intellectual capital brings a change of .633 units in organizational performance due to partial mediation.Ind1 reveals that psychological capital mediates the relationship between intellectual capital and organizational performance (i.e. Intel cap→Psy cap→ Org per) with effect size .152.This indirect effect is statistically significant because the lower and upper limit of bootstrap confidence is above zero (.084 to .262) confirming the findings of hypothesis 4. So data analysis confirms the fact that organizational performance is influenced by intellectual capital and psychological capital whereas psychological capital partially mediates the relationship between intellectual capital and organization performance.

The Sobel Test is performed to reassure the mediation effect of psychological capital in the relationship between intellectual capital and organizational performance. The figure for Sobel test is available in the appendix for quick reference that illustrates the result of the Sobel test where a = unstandardized coefficient for the association between IV and MV

S_a = SE of a

b = unstandardized coefficient for the association between MV and DV

S_b = SE of b

The Sobel Test points out that the mediation effect is statistically significant which means that the mediator (psychological capital) significantly described that the DV (organizational performance) was determined by the predictor (intellectual capital) with the help of a mediator.

In other words, if the organization had a high level of intellectual capital, then we can predict that this organization performance should also be high only if the employees have a high level of psychological capital. Likewise, if employees have a lower level of psychological capital, then we cannot confidently predict how much organizational performance will be based on intellectual capital.

Table 5 shows the summary of the hypothesis results for the present study. The results of the regression analysis and the Sobel test confirm the findings of the hypothesis formulated, so they all are accepted.

Table 5: Summary of Hypothesis results

Hypothesis		Status
H1	Intellectual capital significantly affects organization performance	Accepted
H2	Intellectual capital significantly affects psychological capital	Accepted
H3	Psychological capital significantly affects organization performance	Accepted
H4	Psychological capital mediates the relationship between intellectual capital and organization performance	Accepted

Conclusion, Recommendations and Limitations

Conclusion

Transformation towards knowledge-intensive economy has revived the contribution of organization recourses as the basis of their success in this new economy. Now Organizations are more focused towards continuous innovation, new technologies and developing of new capitals by enhancing knowledge and skills of their human resource rather than investing in an equilibrium framework of organizations. Therefore, the role of intellectual capital and psychological capital as operant resources has received more attention in increasing organization performance. This study is based on the resource-based theory and social network theory that provides major basis for elevating the effect of intellectual capital and psychological capital development on the performance of the software industry. The resource-based theory argues that there is a fit between organization strategic resources and sustainable competitive advantage.

Literature also supports that intellectual capital is the basis for strategic value and for the generation of sustainable competitive advantage. The result of the current study is not completely in line with resource based theory such as software companies did not perceive intellectual capital as a valuable operant resource, they are maintaining intellectual capital as their need for survival not for gaining competitive advantage. The findings of this study helped to draw the conclusion that intellectual capital positively affects the organization performance but its all components role is not more significant. It is inferred that the structure of the software industry is not completely bureaucratic but it is also not as much flexible as it should be. It does not support innovation or creativity that's why if employees have any new idea in their minds they do not share it with other employees. The structure does not provide an opportunity to foster or develop new ideas. Besides that, it is also deduced that employees feel happy for doing work with the organization. They are satisfied with their organization and put all their efforts and energy to give their best. The reason could be the organization's supportive environment and flexible working hours. Organization structure facilitates the flow of information and allows the employees to have access to information which they can exploit to understand the nature of their jobs or to increase their productivity.

From analysis it is fulfilled that organizations give more value to psychological capital as an operant resource and provides employees a supportive environment to develop their psychological capital through social networking. As it is evident from the results, respondents are confident regarding their analytical skills and knowledge in dealing with long-term problems. From the analysis of table 2, it is inferred that the result of the correlation analysis of our sample is according to the previous literature. A moderate and positive relationship exists between intellectual capital and psychological capital which explains that a positive change in the intellectual capital causes the same level of change in psychological capital and vice versa. The relationship is moderate as intellectual capital supports the development of psychological capital, but it does not give enough space for employees to develop their human skills. Software developers are confident that they can do their work effectively but are not confident in having social interaction with clients. They are good in internal relations but while dealing with clients their confidence level goes down and they became less optimistic. Likewise, a strong and significant relationship was observed between intellectual capital and organizational performance

An inference was made from the regression analysis that the result of the mediation model supports our hypothesis H4. It is hypothesized, intellectual capital has a positive impact on organization performance but after the incorporation of psychological capital, this performance goes up. The result of path analysis showed that the direct effect of intellectual capital on organizational performance is significant and positive. It also confirms the indirect effect of intellectual capital and psychological capital on organization performance through path analysis. Hence our research hypothesis that psychological capital mediates the relationship between intellectual capital and organizational performance is confirmed. Therefore, software houses must develop and provide opportunities to increase psychological capital of their employees.

RECOMMENDATIONS

Practical Implications

- Organizations and institutions should entail training programs that develop the constructive beliefs of employees and eradicate self-destructive thinking.
- Activities like brainstorming should perform to improve the employee's psychological capital because it helps the individuals to know about the potentials obstacles and try different approaches to overcome it.
- Teach the employees how to make self-inquiry for determining the behavior which negates them from their path to success.
- Moreover, HR managers should conduct different types of psychological tests which can measure the employee's level of psychological capital at the time of recruitment and also needs to establish appropriate policies for the further development of employee's psychological resource which can narrow the gap between on job and on training performance.

Theoretical recommendation

- There is a need to incorporate other demographic variables like age, income, life experience to investigate the impact of psychological resources on performance.
- In this study, the sample was male-dominated therefore; this study provides new insights into gender orientation. The current study sample was gender neutral, but results show that psychological capital is gender specific so it is recommended this study should be conducted on both the genders separately.

Limitations

- One of the major limitations is that it is a cross-sectional study which is carried out in a short period of time. Cross-sectional nature of data does not allow the investigator to establish the causal relationship between the studied variables.
- Another limitation is that this study is performed, and results are obtained from software houses within the Pakistan context, so its results cannot be generalized in other countries within the same or other sectors as well.
- For the underlying study convenience sampling was used and the selected sample is not representative of the entire population.

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